FIGURE 1

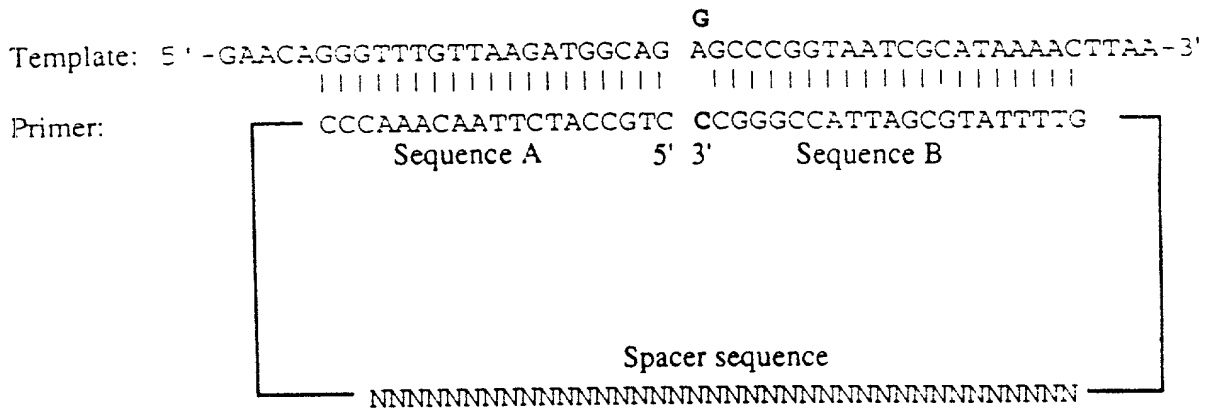

G
Template: 5'-GAACAGGGTTTGTTAAGATGGCAG AGCCCGGTAATCGCATAAAACTTAA-3'
Primer: CCCAAACAATTCTACCGTC CCGGGCCATTAGCGTATTTTG
Sequence A 5' 3' Sequence B
Spacer sequence
NNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNNN

FIGURE 2

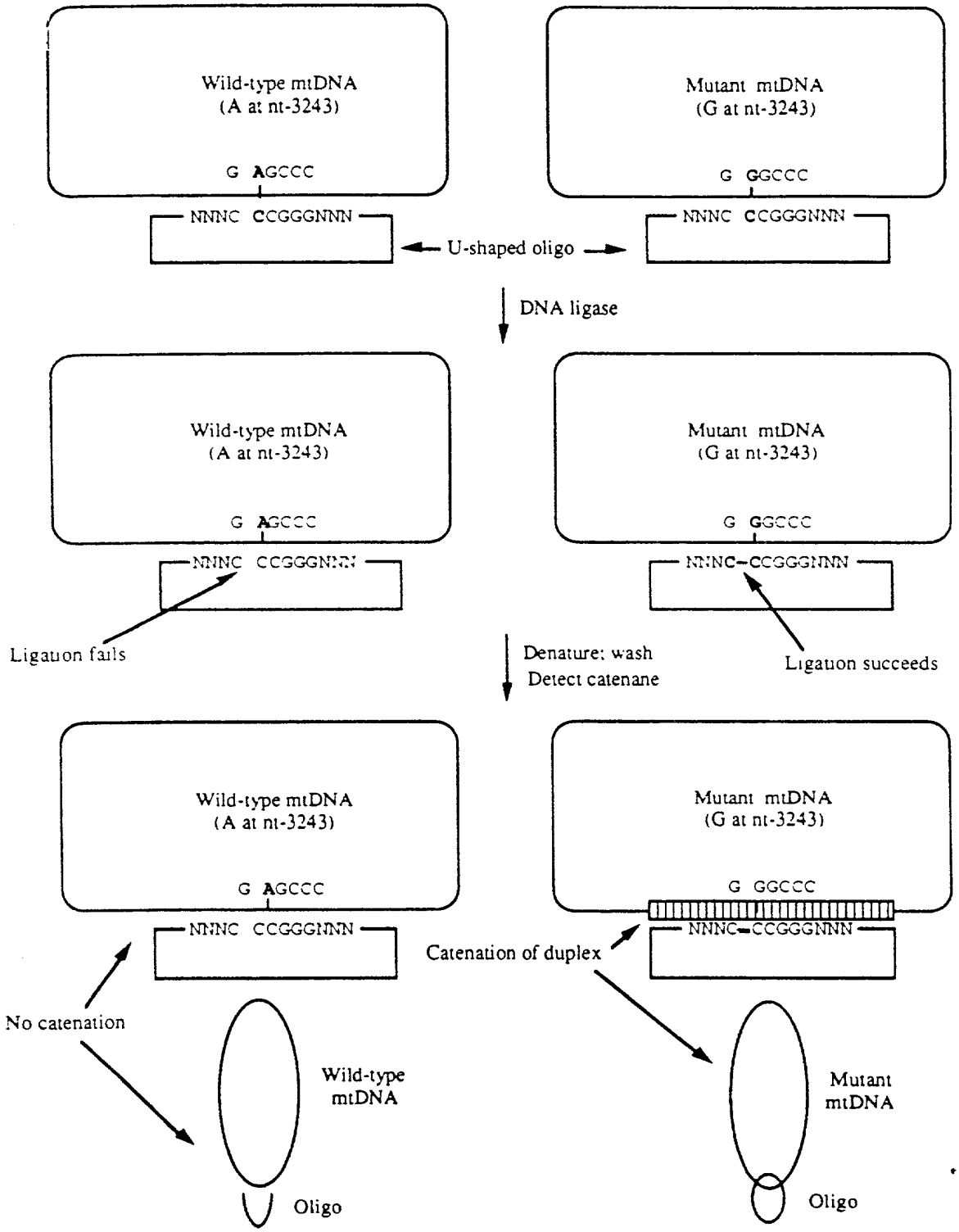
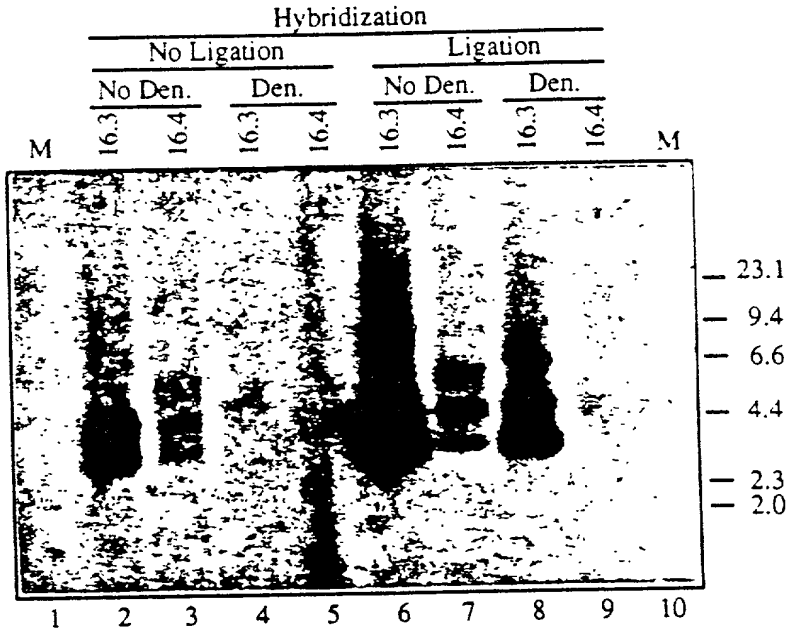

Wild-type mtDNA
(A at nt-3243)
G AGCCC
NNNC CCGGGNNN
Mutant mtDNA
(G at nt-3243)
G GGCCC
NNNC CCGGGNNN
U-shaped oligo
DNA ligase
Wild-type mtDNA
(A at nt-3243)
G AGCCC
NNNC CCGGGNNN
Ligation fails
Mutant mtDNA
(G at nt-3243)
G GGCCC
NNNC-CCGGGNNN
Ligation succeeds
Denature; wash
Detect catenane
Wild-type mtDNA
(A at nt-3243)
G AGCCC
NNNC CCGGGNNN
Mutant mtDNA
(G at nt-3243)
G GGCCC
NNNC-CCGGGNNN
Catenation of duplex
No catenation
Wild-type
mtDNA
Oligo
Mutant
mtDNA
Oligo

FIGURE 3


Hybridization
No Ligation
Ligation
No Den.
Den.
No Den.
Den.
16.3
16.4
16.3
16.4
16.3
16.4
16.3
16.4
M
M
23.1
9.4
6.6
4.4
2.3
2.0
1
2
3
4
5
6
7
8
9
10